

axis accelerometer detects when the bone is in extension; positioning **7830** the tibial prosthetic component or sensed insert to be aligned to a predetermined location; and zeroing **7840** the tibial prosthetic component such that the contact point position of the tibial prosthetic component is about zero at the predetermined location.

At least one embodiment further includes a step of aligning **7850** the tibial prosthetic component or sensed insert to a bone landmark. At least one embodiment further includes a step of aligning **7860** the tibial prosthetic component or sensed insert to a mechanical axis of the joint.

At least one embodiment further includes a step of storing **7870** an amount of rotation of the tibial prosthetic component when the tibial prosthetic component position is fixed.

At least one embodiment **7705**, as illustrated in FIG. **79**, further includes the steps of: placing **7910** the sensed insert having a first articular surface and a second articular surface into the knee joint where the sensed insert is coupled to a tibial tray of the tibial prosthetic component; positioning **7920** a femur and tibia in extension where the three-axis accelerometer detects when the bone is in extension; positioning **7930** the tibial prosthetic component or sensed insert to be aligned to a predetermined location; and zeroing **7940** the prosthetic component such that the contact point position of the tibial prosthetic component is zero at the predetermined location.

At least one embodiment further includes the steps of: monitoring **7950** position of load on the first and second articular surfaces; and rotating **7960** the tibial prosthetic component relative to the tibia until the position of load of each articular surface is within a predetermined area range; and measuring **7970** and storing the rotation required to place the position of load on the first and second articular surface within the predetermined area range.

At least one embodiment, as illustrated in FIG. **80**, further includes the steps of: performing soft tissue tensioning **8000**; monitoring **8010** load on the first and second articular surfaces; and adjusting **8020** loading respectively on the first articular surface and the second articular surfaces to be within a first predetermined load range and a second predetermined load range.

At least one embodiment is directed to a system for adjusting contact position of a muscular-skeletal joint comprising: a prosthetic component configured to rotate after being coupled to a bone; a sensed insert having an articular surface where the sensed insert is configured to couple to the prosthetic component, where the sensed insert has a plurality of pressure sensors coupled to the articular surface and a three-axis accelerometer to measure position and tilt, and where the three-axis accelerometer is referenced to gravity; a remote system configured to wirelessly receive position of load data from the sensed insert where the remote system is configured to display the articular surface, where the remote system is configured to display position of applied load to the articular surface, and where the remote system is configured to store a zero contact point where the bone and prosthetic component are aligned.

In at least one embodiment the remote system is configured to display a predetermined area range on the articular surface, where the remote system is configured to indicate positions of flexion of the bone, where the remote system is configured to store an amount of rotation of the prosthetic component relative to the zero contact point where rotating the prosthetic component changes a position of applied load to the articular surface.

While the present invention has been described with reference to particular embodiments, those skilled in the art will

recognize that many changes may be made thereto without departing from the spirit and scope of the present invention. Each of these embodiments and obvious variations thereof is contemplated as falling within the spirit and scope of the claimed invention, which is set forth in the claims. While the subject matter of the invention is described with specific examples of embodiments, the foregoing drawings and descriptions thereof depict only typical embodiments of the subject matter and are not therefore to be considered to be limiting of its scope, it is evident that many alternatives and variations will be apparent to those skilled in the art. Thus, the description of the invention is merely descriptive in nature and, thus, variations that do not depart from the gist of the invention are intended to be within the scope of the embodiments of the present invention. Such variations are not to be regarded as a departure from the spirit and scope of the present invention.

While the present invention has been described with reference to embodiments, it is to be understood that the invention is not limited to the disclosed embodiments. The scope of the following claims is to be accorded the broadest interpretation so as to encompass all modifications, equivalent structures and functions. For example, if words such as “orthogonal”, “perpendicular” are used the intended meaning is “substantially orthogonal” and “substantially perpendicular” respectively. Additionally although specific numbers may be quoted in the claims, it is intended that a number close to the one stated is also within the intended scope, i.e. any stated number (e.g., 90 degrees) should be interpreted to be “about” the value of the stated number (e.g., about 90 degrees).

As the claims hereinafter reflect, inventive aspects may lie in less than all features of a single foregoing disclosed embodiment. Thus, the hereinafter expressed claims are hereby expressly incorporated into this Detailed Description of the Drawings, with each claim standing on its own as a separate embodiment of an invention. Furthermore, while some embodiments described herein include some but not other features included in other embodiments, combinations of features of different embodiments are meant to be within the scope of the invention, and form different embodiments, as would be understood by those skilled in the art.

What is claimed is:

1. A method of changing a contact point of a joint in the muscular-skeletal system using quantitative measurements comprising the steps of:

placing a sensed prosthetic component in the joint wherein the sensed prosthetic component has an articular surface and wherein a plurality of load sensors couple to the articular surface;

measuring a load magnitude with each of the plurality of load sensors applied by the muscular-skeletal system to the articular surface wherein the sensed prosthetic component includes electronic circuitry coupled to the load plurality of sensors, an inertial sensor, and a power source and wherein the electronic circuitry is configured to control a measurement process;

measuring a reference position of the sensed prosthetic component relative to a bone wherein the sensed prosthetic component is coupled to the bone and wherein the inertial sensor is configured to measure the reference position;

transmitting measurement data from the sensed prosthetic component to a processor wherein the measurement data is stored in memory coupled to the processor wherein the processor is configured to calculate a contact point from the measurement data;